

## AN ANALYSIS OF MATHEMATICAL'S WRITING OF STUDENT'S ABILITY ON THE CLASS VIII

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### **Abstract**

The research has a goal to describe writing mathematical student capability based on mathematics expression aspect and writing text aspect on the system equation linear two variable lesson. The research is using qualitative approach which creature of descriptive. The collecting technique of data which done is about the result of answering test. The result's analysis of the research student capability on writing mathematical expression and writing text which be on the system equation linear two variable matter is about the student can writing mathematics model which suitable with the matter has given, but did not write the formula completely. The result's analysis of test on the writing text aspect, student can write the symbol exactly but there is notconsistently and less coherent on writing steps. A shortage of mathematics expression and writing text because of student less on understanding what it asked on the matter. The abilities' result of students mathematics written based on expression mathematics on the high cathegories and get average about 67,54%, while getting result of writing text on the middle cathegories as about 60,52%.

**Key words:** Writing mathematics capability, Mathematics expression, Writing text

### **INTRODUCTION**

Education have an act interesting on the human life. National education have a function to develop ability and make an characteristic with nation culture which have a grade on the framework to make human life clever. The effort which do for make an human life clever, the government must do action such as curriculum development to learning in the school. One of the goal of mathematics learning which want to achieve is giving the opportunity as possible to student to develop communication skill by modeling or showing, speaking a word, writing, discussing, describing and presenting what is learned (Wahyuni, 2015).

Communication is a process of information delivery which a message, an idea, or concept of a sides to other sides may be affect each other both (Widiastuti, 2011). Mathematical communication is an interaction process in the mathematics learning

activities, where student can explain mathematics idea each other (Fajar, 2014). One of the aspect on the mathematical communication activities is writing. Writing activities is really important aspect on the mathematical communication. According to Fajar (2014) mathematical's writing describe mathematics idea and thinking process on the mathematics problem solving by following the principles writing in mathematics. Student said to be able to write mathematical, if student write the solution to a problem or task which given by regard a symbol or formula: organizes all the work step by step: and solve the problem use graphics, picture or table (Supandi, 2013).

Mathematical's writing have function to explain of mathematics idea which student have. The observation's result found a problem, such as student communication by learning mathematics. The observation which done on the VIII A class there are 12 student who did not consistent in writing symbol, did not writing a formula systematically and write a step solution did not complete, so that the result is inaccurate. Because of that mathematical writing ability could be describe as a problem faced by student. According to Rias (2013) about the communication mathematical student ability to the matter of a beam and cube which explaining the average of writing text capabilities at about 66.756%. The writing ability be on category of capable, because part of student able to explain a problem with a figure form and situation. Student can explain a problem, but the explaining which given incomplete and systematically structure. Student can also understand of the problem, but they were difficulty to arrange a sentences. The average's result of mathematical expression student ability to the matter of a beam and cube at about 46.525%.the result give information that mathematical expression student be on intermediate classified, because part of student less capable to modeling a problem so that cannot do a counting.

## **THE RESEARCH METHOD**

The kind of the research is descriptive using the qualitative approach. The data which got on the research is data about answer's result and student's test. The research conducted in MTs Muhammadiyah 1 of Malang on the date of 1<sup>st</sup> until 2<sup>nd</sup> March 2017. The research subject is all of student in VIII A class on MTs Muhammadiyah 1 of Malang with a total of 19 student. The research procedurdivide on three step, they are preparing step, planning step, and implementation step.

The data collecting technique which used on the research is using test. Test on the research is using to measure a mathematical writing student ability on the mathematics expression aspect and writing text aspect. The data which collecting on the research is the answering student result about system of linear equation of two variable. The data which resulted in the research is about describe an answering student result, so that the research use written test technique to collect a data.

## THE RESULT OF THE RESEARCH AND THE DISCUSSION

The research was conducted in VIII A class of MTs Muhammadiyah 1 of Malang during 2 meeting times on the date 1<sup>st</sup> until 2<sup>nd</sup> March 2017. The result of the research talking about mathematical writing of student's ability on the matter of a system of equation linear two variable with using two aspect, they are mathematics expression aspect and writing text aspect. mathematics expression aspect is the representation of student ability to understand the problem, meanwhile writing text aspect on the research include writing mathematics symbol correctly and writing the step to solve the mathematics problem.

### 1. Mathematical writing ability on the mathematics expression aspect

Mathematics expression is the representation of student ability to understand the problem which do on the research with two indicators, they are mathematics model and writing mathematics formula. Student can make mathematics expression if student can write a formula and mathematics model.

Table 1 Mathematical of Writing Ability on The Mathematics Expression Aspect

No	Indicator	Number			The average of indicator	The average of mathematics expression
		1	2	3		
1	Student can write a mathematics idea with a form of mathematics model	96,05%	51,31%	76,31%	74,56%	67,54%
	Category	High	Intermediate	High	High	High
2	Student can write mathematics formulacorrectly.	65,79%	44,74%	71,05%	60,53%	

Category	Intermediate	Intermediate	High	Intermediate
3 The average of a problem every number	80,92%	48,02%	73,68%	
Category	High	Intermediate	High	

The percentage of mathematics expression student ability on the first indicator of number one produce percentage of 96,05% with the high category. Number two produce percentage of 51,31% with the intermediate category. Number three produce percentage of 76,31% with the high category. Comprehensively on the first indicators produce percentage 74,56%, it is describe that student ability on the high category to indicators of writing a problem on the form of mathematics model correctly, logical, systematic. The second indicator, on the number one produce percentage of 65,79% with the intermediate category, number two produce percentage of 44,74% with the intermediate category, meanwhile on the number three produce percentage of 71,05% with the high category. Comprehensively on the second indicator produce percentage of 60,53%, it show that student ability on the intermediate category to indicator of writing mathematics formula correctly. The result of mathematical mathematics student ability to mathematics expression aspect on the first and second indicator can produce percentage 67,54%, so mathematics expression student ability be on high category.

## 2. Mathematical writing ability on the writing text aspect

The indicator of writing text on the research include mathematics writing symbol correctly and writing a step of solving a mathematics problem. The ability to using a symbol correctly to writing mathematics answer is so needed. Writing a step to solve a problem is the result of student's understanding for the lesson that has been learned. Step has relation with a completely and systematical when solve a problem and give a reason with a steps has written.

Table 2 Mathematical of Writing Ability on The Writing Text Aspect

No	Indicator	Number			The average of indicator	The average of Writing text
		1	2	3		
1	Student can writing a mathematics symbol correctly.	61,85%	48,68%	61,84%	57,46%	
	Category	Intermediate	Intermediate	Intermediate	Intermediate	
2	Studet can write a step to solve a problem correctly and complete.	65,79%	51,31%	73,68%	63,59%	60,52% Intermediate
	Category	Intermediate	Intermediate	High	Intermediate	
3	The average of a problem every number	63,81%	49,10%	67,76%		
	Category	Intermediate	Intermediate	High		

The percentage's result of writing text student ability on he first indicator, on the number one produce percentage of 61,84% with a middle category, number two produce percentage of 48,68% with a middle category, meanwhile on the number three produce percentage of 61,84% with a middle category. Comprehensively on the first indicator produce percentage 57,45%, it shows that student ability on the middle category to indicator of mathematics symbol correctly. The second indicator, on the number one produce percentage 65,79% with the intermediate category, number two produce percentage 51,31% with the middle category, meanwhile on the number three produce percentage 73,68% with the high category. Comprehensively on the second indicator produce percentage 63,59%, it shows that student ability on the intermediate category to indicator of writing step to solve a problem completely. The test's result of mathematical writing student ability on the aspect writing text on the first and second indicator produce percentage of 60,52%, so writing text student ability be on middle category.

The research which done by Andriyani (2013) about mathematical's writing of student's ability on the matter a surface area and volume geometric the upright side using three aspect, they are mathematics expression, drawing and writing text. The result of the research explain that student which had mathematics expression ability get percentage 67,25% be on intermediate category. Student with draw's ability get percentage 70,37% be on intermediate category. Beside that, student which had writing text ability get percentage 83,33% be on high category.

## **CONCLUSION**

Referring to the result of the research had done about mathematical writing student ability which done in MTs Muhammadiyah 1 of Malang, can conclude as been as.

- a. Mathematical of writing student ability on the mathematics expression aspect in good a wrote of mathematics idea and writing mathematics formula. It shows on the average score of mathematics expression student's ability about 67,54% which be on high category.
- b. Mathematical of writing student's ability on the aspect of writing text in considered to be good enough of writing symbol or steps when solve a problem. It shows on the average score of writing text student's ability about 60,52% be on intermediate category.

## **REFERENCES**

- Andriyani, Ana. 2013. *Mathematical Writing Ability Analysis of Grade VIII Students of SMP Al Irsyad Surakarta On Surface Area Matter and Volume Build Upright Side Space Year 2011/2012*. Thesis UNS
- Fajar, Fauziah. 2014. *Efforts to Improve Student Mathematical Communication Skills With Implementation of Mathematical Writing Strategies*. Thesis State Islamic University Syarif Hidayatullah Jakarta.
- Fauziah, Shifa. 2015. *Efforts to Improve Mathematical Writing Ability Through Realistic Mathematical Approach*. Thesis State Islamic University Syarif Hidayatullah Jakarta
- Rias. 2013. *Student Mathematical Communication Ability in Cube and Beam Material*. Thesis Universitas Negeri Gorontalo

Supandi. 2013. *Development of Mathematics Learning Device With Think Talk Write Blended Learning Strategy To Improve Mathematical Writing Skill of Junior High School Students. Journal of FPMIPA IKIP PGRI Semarang*

Wahyuni, Lilik, Umi Salamah & Purwiyanto. 2015. *Cultivate World Class Writing to Build Quality Library Improvement Efforts Library in the middle of Sophisticated Information Technology. Malang: Pena Surya Gemilang.*

Widiastuti, Endah. 2011. *Efforts to Increase Mathematical Communication Skills and Self-Confidence of VII Grade Students of SMP Negeri 1 Minggir Sleman Through Think-Talk-Write Strategy (TTW) (Implementation on Basic Competence and Wide Width of Flat). Thesis State University of Yogyakarta*